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William Braham

University of Pennsylvania, brahamw@design.upenn.edu

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Abstract

Modern environmentalism originates with the recognition of ecological connectivity and the negative effects of technological intervention. This paper examines critical concepts developed by the architect Frederick Kiesler and the critic-historian Siegfried Giedion for their relevance to that discourse. Kiesler's principle of Correalism and Giedion's appeal for Equipoise offer both a prehistory to the current mandates about sustainability and cautions about its limitations. The sustainable is ultimately a social condition that cannot be applied therapeutically nor ever wholly institutionalized.

Keywords

correalism, equipoise, sustainable, giedion, kiesler, braham

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Correalism and Equipoise: observations on the sustainable

William W. Braham

Author's address
Department of Architecture
University of Pennsylvania
207 Meyerson Hall
Philadelphia
PA 19104-6311
USA

Modern environmentalism originates with the recognition of ecological connectivity and the negative effects of technological intervention. This paper examines critical concepts developed by the architect Frederick Kiesler and the critic-historian Sigfried Giedion for their relevance to that discourse. Kiesler's principle of Correalism and Giedion's appeal for Equipoise offer both a prehistory to the current mandates about sustainability and cautions about its limitations. The sustainable is ultimately a social condition that cannot be applied therapeutically nor ever wholly institutionalized.

What is the proper architectural measure for sustainability – energy use, waste, population growth, carrying capacity? Each of these otherwise useful measures belongs to an instrumental paradigm that is itself complicit in our environmental problems. It is not accidental that the terms ecology and economy were conceived together in the nineteenth century (Bramwell, 1989); like the concepts of momentum and energy, they are the fruit of that era's great conservation laws, which are based on the assumption of scarcity. While these are necessary measures for technical performance, they grossly distort the human dimension of environmental constructions. Neither the beauty nor the convenience nor even the utility of buildings is bound by the constraints of scarcity; they belong to the historically conditioned construction of identity. As psychology has taught us, human fears and desires multiply as physical limitations are reached. By exploring the prehistory of contemporary sustainability for concepts not strictly bound to the principles of conservation or scarcity, this paper seeks an art of the sustainable that acknowledges its symbolic dimensions.

Two architectural authors illuminate aspects of that history: the architect Frederick Kiesler and the critic-historian Sigfried Giedion both contributed to the nineteenth- and twentieth-century discourse about mechanization and its consequences. In a sequence of published and unpublished works in the 1930s Kiesler developed a theory about the relationship between buildings and nature that he called Correalism, and which identified the

importance of 'needs' to the logic of technological invention. In his *Mechanization Takes Command* of 1948, Giedion examined the loss of public, regenerative bathing habits and the rise of the private forms of cleansing still largely practised today. He concluded that work with a plea for 'dynamic balance' that he called Equipoise. Both works develop from ideas of interconnection that we now associate with systems theory and that are integral to the modern ecology on which sustainability is based. Through close examination of everyday constructions like buildings or bathtubs Kiesler and Giedion noted the social consequences that result from the imposition of instrumental logic.

The distinction between instrumental criteria and social or symbolic ones is everywhere present in modern environmentalism, which can itself be traced to two fundamental concerns: one about the conservation of resources, and the second about the preservation of health. These issues are wholly intertwined in most environmental practices by whose logic the management of resources is assumed to ensure physical survival. But fears about illness and mortality well exceed strict determinations of risk, contributing to images of social identity, and their formation and projection into the future (Douglas, 1992). The assumptions on which those views rest are themselves historically changeable: environmental mandates developed as a negative critique of unhindered expansion and growth, and have only subsequently established sustainability as a positive description of the good society which they hope to ensure. And yet,

sustainability can never be a wholly objective principle, as it must apply to the complex interaction between measurable environmental features and human concerns or desires that formed the subject of Kiesler's Correalism.

Correalism

Frederick Kiesler (1890–1965) was a student of Josef Hoffman, a follower of Adolf Loos, and a member of the De Stijl who emigrated to New York in 1926 to organize an exhibition of modern theatre techniques. In New York he was active in numerous polemical organizations: Buckminster Fuller's Structural Studies Associates (SSA), the American Union of Decorative Artists and Craftsmen (AUDAC), and the Living Theatre. Partly due to his long affiliation with Marcel Duchamp, Kiesler was the only architect that André Breton accepted as a Surrealist, while in architectural circles he is remembered for the Film Guild Cinema (1929), Peggy Guggenheim's Art of this Century gallery (1942), the Shrine of the Book in Jerusalem (1965), and his many 'Endless' houses.

It might seem unusual, therefore, to cite him in the context of sustainability, were it not for his dedicated elaboration of the theory of Correalism and its method of Biotechnique. Those concepts were explained architecturally in a dense article 'On Correalism and Biotechnique: A Definition and Test of a New Approach to Building Design', published in *The Architectural Record* of 1939, and were subsequently explored as a surrealist concept in 'Manifeste du Corréalisme ou les états unis de l'art plastique' in *L'Architecture d'Aujourd'hui* of 1949. The difference between the two articles results partly from Kiesler's steady ascent within the art world, and partly from the inadequacies of Correalism as a theory of practice. Similarities between the two pieces rest on the ideas of interconnection and continuity that underlie most of his work and offer a valuable perspective on sustainability. The concept of 'correlation' was much used by the SSA in the early '30s, and when this group assumed editorial control of *Shelter* magazine in 1932 they subtitled it 'A Correlating Medium for the Forces of Architecture'. Fuller's opening essay for that issue was called 'Correlation', and though Kiesler's neologism, and its altered spelling, indicates an architectural translation of the SSA's concepts of interrelationship, Correalism nevertheless derives from the evolutionary ideas about tools and society advanced by Patrick Geddes and applied by Lewis Mumford in *Technics and Civilization* of 1934. In effect, Mumford's concluding observations in that book might be taken as an outline of the efforts of Kiesler and the SSA:

'The humane arts of the physician and the psychologist and the architect, the hygienist and the community planner, have begun during the last few decades to displace the mechanical arts from their hitherto central position in our economy and our life. For, pattern, configuration, organism, historical filiation, ecological relationship are concepts that work up and down

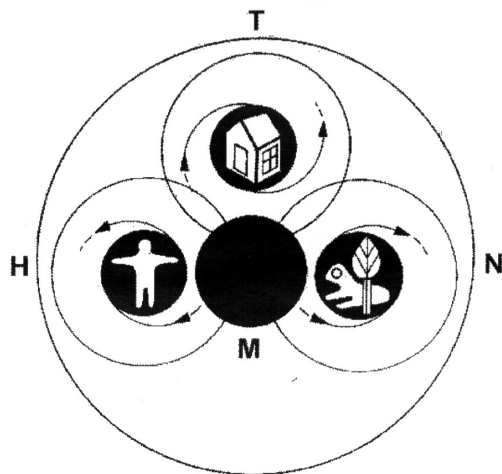
the ladder of the sciences: the esthetic structure and the social relations are as real as the primary physical qualities that the sciences were once content to isolate' (1934).

In the words of another SSA member, Knud Lönberg-Holm, who was at that time a technical editor at the *Record*, they were 'Technicians on the Cultural Front' (1936). Applying the ideas of ecological science constituted a rejection of the mechanical analogies that Kiesler later called 'pseudo-functionalism' in preference to concepts of interconnection (Kiesler, 1949b).

Continual interaction

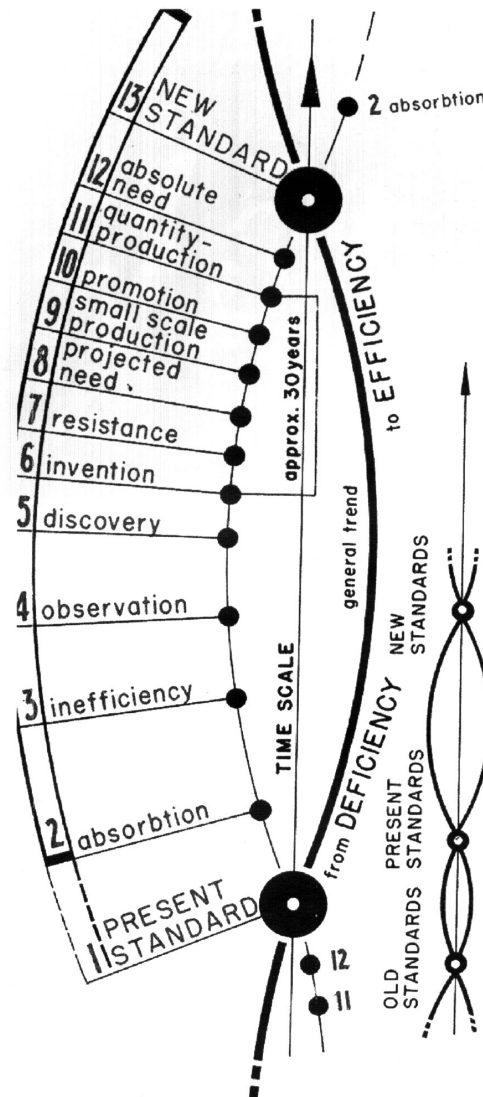
Kiesler's definition of his new term was succinct: 'the term "correalism" expressed the dynamics of continual interaction between man and his natural and technological environments' (1939). The *Architectural Record* article begins with a tripartite diagram illustrating the equivalent effects on man of biological nature, human habits and customs, and the world of tools [Fig. 1]. He subsumed all manner of tools and machines under the concept of technological environment, from 'shirts to shelter', developing a progressive chart of their variations in terms of the human needs which they meet [Fig. 2]. 'Invention' for example follows from the observation of some inadequacy in the 'present standard', and progresses through various phases of advance and resistance. The step to 'quantity production' and a 'new standard' was shown to take 30 years and followed on the projection of that need to a larger public by 'promotion'. Not coincidentally, Buckminster Fuller cited 25 years as the amount of time required between the invention and mass production of his Dymaxion housing and geodesic domes, though he neglected the human aspect of that process. In Kiesler's view, the interaction between tools, needs, and environment was continual and as he repeatedly explained, 'no tool exists in isolation. Every technological device is *co-real*: its existence is conditioned by the flux of man's struggle' (1939). The connection between human needs and technological invention led him to a critical set of questions. 'What is a need? How do needs arise? Are they natural or artificial? Are they static or in evolution? A definition of needs has today become of prime importance to the designer of technological environment. Investigations on this crucial point cannot be based upon the study of architecture but must be based on the study of man' (1939).

The shift of focus onto man and his needs leads to the key insight of Kiesler's Correalism: 'Needs are not static: they evolve'. Moreover, only a few of those needs are 'absolute' – hunger, thirst, etc. – and even those are largely culturally conditioned. The 'need' for comfort by which most environmental technologies are shaped has progressed step-by-step with the devices meant to accommodate its demands. In other words, the aspirations or even luxuries of one generation become the needs of the next, and so drive the progressive advance of innovation. Indeed, as Ivan Illich has argued, the



1 Frederick Kiesler, 'Man = Heredity = Environment. M = Man, H = Human Environment, T = Technological Environment' (as reproduced in *The Architectural Record*, September 1939)

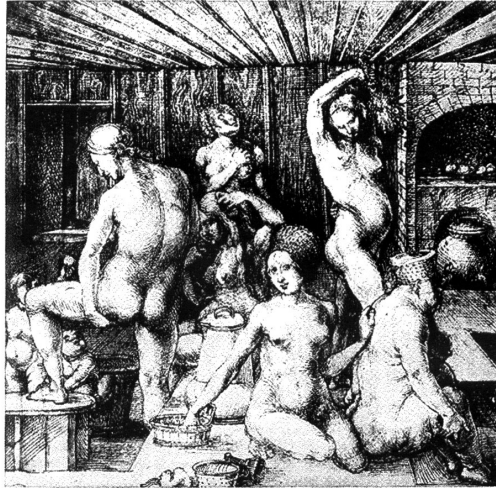
2 Frederick Kiesler, 'Every need follows a characteristic pattern of development. A minimum of 12 progressive stages can be detected in progression from one standard to the next' (also reproduced in *The Architectural Record*, September 1939)



concept of need itself is an indicator of the technological paradigm, and certainly lies at the heart of any design methodology based on function, whether mechanical or ecological. In a recent article, Illich illustrated the logic of needs in the creation of new environmental standards and their independence from the devices themselves: 'it is easier to junk the inefficiently air-conditioned skyscrapers of San Juan de Puerto Rico than it is to extinguish the yearning for an artificial climate. And once this yearning has become a need, the discovery of comfort on an island exposed to the trade winds will become very difficult' (1992).

In the needs paradigm, technological devices are developed to compensate for human deficiencies, and although they are commonly evaluated by the relative efficiency of that compensation, the very sense of the deficiency is changed by its satisfaction. Instead of technical criteria based on conservation

laws, or even the age-old triumvirate, 'beauty, durability, and practicability', Kiesler proposed a physiological standard, arguing that the failure of tools, especially buildings, ultimately leads to physical degeneration. In terms that prefigure Giedion's writing and the post-war discussion of work, he suggests that the ultimate purpose of tools is human regeneration, and offered health as the 'fundamental denominator' and ultimate criteria of his design method, Biotechnique. Kiesler's definition of health as an environmental equilibrium also prefigures the popular ecological view of the immune system that has followed from the efforts to understand diseases like AIDS and Lupus (Martin, 1994). The focus on health, in particular, establishes Correalism as a predecessor to contemporary environmentalism, but following Kiesler's own logic, even health must be *co-real* and subject to change by the techniques meant to sustain it.



3 Albrecht Dürer:
'The Women's
Bath, 1496' (as
reproduced
in Giedion's
*Mechanization Takes
Command*)

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Feedback and the concern for health

His subsequent observation about the negative effects of even well-intentioned technological interventions is perhaps the fundamental principle of environmentalism, deriving equally from the systems view, with its concept of feedback, and the concern for health: 'throughout his historical development man has steadily added to his technological environment. In his primitive stages this relationship was relatively well balanced; but through ancient and medieval times, this relationship became increasingly complex and unwieldy, until today man's health is literally threatened by the very tools he created to protect it' (1939). This tenet fits comfortably into the dictates of sustainability, except for the fact that like other 'needs', the concept of health is itself changeable. The use of technological interventions to preserve that health, whether by medical doctors, public health officials, or architects can have unexpected consequences. Moreover, the common language use of 'healthy' also 'qualifies ethical and political actions' (Illich, 1976). The understanding of health is every bit as social and symbolically based as any other human construction; and like the natural environment itself, the complexity of such systems often makes them unstable and unexpectedly responsive. Illich has even coined a term for the negative effect of well-meaning professional interventions, calling them *Iatrogenesis* (caused by the doctor). 'Health levels can only decline when survival comes to depend beyond a certain point on the heteronomous (other-directed) regulation of the organism's homeostasis. Beyond a critical level of intensity, institutional health care no matter if it takes the form of cure, prevention, or environmental engineering is equivalent to systematic health denial' (1976).

Although that argument was aimed at medical institutions of the 1970s, its cautions are equally applicable to environmental design and construction for which sustainability has become a primary directive. The issue is not whether or not to

build, but how to determine suitable levels of intervention, and for that mission, Kiesler's *Correalism* fails to guide us. When health is understood as a need, rather than as a condition which will involve the endurance and negotiation of pain or the possibility of death, then the role of the expert professional has no limits. By definition, needs are never wholly satisfied. That is the human condition, though it has been magnified in the powerful lens of marketing and advertising. What is new is the limited conception of man as a network of such needs. The initial observation made by Kiesler, which is given shape and force by Illich's deeper analysis of the needs paradigm, alerts us to the underlying change in human identity that accompanies industrial development. 'The human condition has ceased to be defined as the art of suffering necessity; now it is understood as the measure of imputed lacks which translate into needs' (Illich, 1992). Kiesler understood the unstable complicity between tools and human fears or desires, but despite that achievement his theory of *Correalism* was wholly bound to the needs paradigm by which modern functionalism defines its tasks.

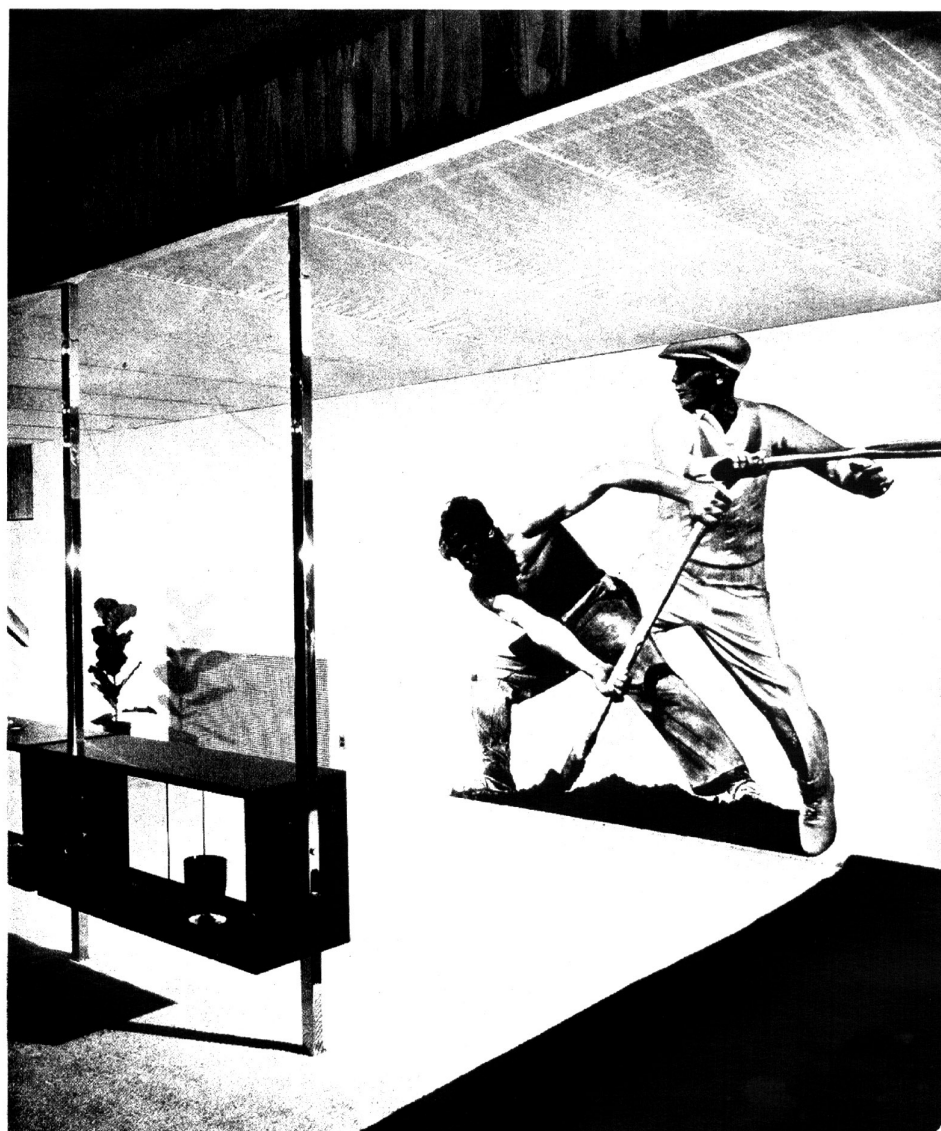
Regeneration and Equipose

Sigfried Giedion (1888–1968) is also an unlikely figure to cite in a discussion about sustainability since his most popular work, *Space, Time and Architecture* of 1941, played such an important role in shaping the industrial ethic of contemporary architecture. Nevertheless, his massive post-war work, *Mechanization Takes Command* (1948), probed and questioned exactly those consequences of mechanization which environmentalists remark: its deleterious effects on food, soil, and the conditions of everyday life. While he maintained his search for and enforcement of a modern style, his appeal for techniques of 'regeneration' and the concept of *Equipose* make his work relevant to the practices of sustainability.

The final section of the book, called 'The Mechanization of the Bath', traced the long history

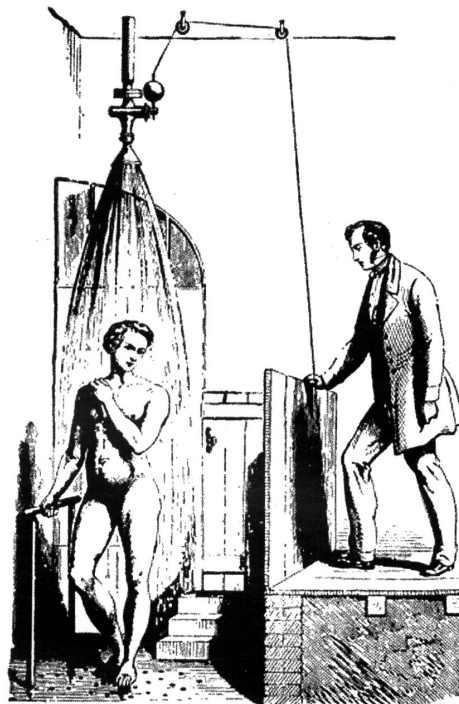
ing habits from the ancient world to the e-shell, enamelled tub standardized around Only the last few decades of that tale actually e any mechanization or factory production: e, Giedion writes of the demise of the leisurely e bathing rituals practised in Rome and e tium, whose remnants can still be located in e rkish and Russian steam bath, the e inavian sauna, and, perhaps, the American hot e id jacuzzi. This transformation of habits is e ated with the Reformation and Counter- e nation, and he illustrates its last European e nt with Dürer's engraving of 'The Women's e naked women wash and lounge together in a e , moist room with no apparent embarrassment e]. After this time, nudity and such intimate e gatherings were increasingly suspect and e le lost most of its traditions of bathing, public e rwise.

Giedion linked the modern reappearance of the bath to the development of scientific medicine in the eighteenth century, the rise of naturalism, and, to some degree, the fascination with the Orient, where bathing habits had continued uninterrupted. Western bathing, however, had become a therapeutic endeavour, administered by professionals or taken primarily in the pursuit of cleanliness and health. Of course, the pleasures of bathing were never wholly absent, but like other pleasures of the naked body, they were consigned to private exploration. Combining privacy and efficiency, the three-fixture room of the bath was finally and firmly joined to the private bedroom at the turn of the twentieth century. The opposition that Giedion read there was epic: regeneration versus ablation, leisurely public renewal versus furtive private cleansing. His preference was clear and the strength of his conviction allowed him to dismiss the



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5 'Rain Bath for Medical Purposes, France, c. 1860' (as reproduced in Giedion's *Mechanization Takes Command*)



5

democratic dissemination of the clean white bathtub as a loss for civilization.

An ethic of living

Giedion argued not for the design of a better artifact – the enamelled tub was a sufficient symbol of prowess – nor for a new standard or method of design as did Kiesler, but for an ethic of living that might make regeneration possible. 'Regeneration is something that cannot arise in isolation. It is part of a broader concept: leisure. Jacob Burckhardt found in the word *arete* (or virtue) the key to Greek conduct. Leisure, in this sense, means a concern with things beyond the merely useful. Leisure means to have time. Time to live. Life can be tasted to the full only when activity and contemplation, doing and not doing, form complementary poles, like those of a magnet. None of the great cultures has failed to support this concept' (1948).

His attention to leisure derived from the broad post-war discussion about work in which thoughtful writers from Josef Pieper in *Leisure: The Basis of Culture* (1952) to Simon de Grazia in *Of Time, Work, and Leisure* (1962), questioned the goals of industrial civilization. Thorsten Veblen had given the term its modern currency with his *Theory of the Leisure Class* (1899), and Mumford, too, had offered the concepts of 'leisure, free activity, creation' as the proper goals of machine production' (1934). The polarity between work and leisure was even latent in Kiesler's work, illustrated by the photo-mural of work and play that he installed in his Space House of 1934 [Fig. 4]. Leisure is not merely free time, nor a release from work, and so eludes measurement, offering instead a human

standard for regeneration, a virtue rather than a criterion, that we could apply to the new ethic of sustainability.

Giedion concluded his book with an appeal for a condition of dynamic equilibrium between 'the organic environment and artificial surroundings'; between 'the individual and collective spheres'; and between 'thinking and feeling'. He called that condition 'man in equipoise', and we might call it health sustained. Like Kiesler, Giedion shifted his analysis away from tools, devices, or buildings onto man and his communities. Adopting the virtue of Equipoise suggests that the mission of sustainability is not merely a technical matter of safeguarding resources or enforcing well-defined measures of health, but an interrogation of the very condition of technological intervention. One of Giedion's final bathing images illustrates the limitations of professional and technological health enforcement. It shows a doctor subjecting a patient to a cold-water rain bath and, in the caption, remarking at the terror they exhibit at their first shower: 'it is no rare thing to see a subject who at this first shower betrays actual terror, shouts, struggles, runs away, experiences frightening suffocation and palpitation' [Fig. 5]. The contrast to the leisurely bathing of medieval women is evident, as is the distance of that therapeutic encounter from the 'man in equipoise' that Giedion had proposed.

An art of the sustainable

Modern environmentalism originates with the recognition of ecological connectivity and the negative effects of technological intervention. The

mandates of sustainability are intended to safeguard resources and ameliorate those effects. To that mission, this reading of Kiesler and Giedion adds two important cautions. First, the needs which drive the cycles of intervention are themselves changeable, images of health included, and they are changed by the devices developed to satisfy them, sustainable or not. Second, the regeneration that lies at the heart of Giedion's Equipose offers a human model for sustainability; it is a social condition that cannot be applied therapeutically by experts nor ever wholly institutionalized.

Giedion's description of regenerative bathing suggests a third limitation to permanently sustainable architectural practices: the necessity of their regular renewal. 'The feeling of delight that is produced when the human organism is in perfect health, functioning at its best, does not last for long. To restore this bodily equilibrium and thus impart physical happiness is, as we have said, the basic purpose of true regeneration'. That may be a difficult observation for a profession devoted to the virtues of timelessness, and we might add to Giedion's criteria for Equipose the balance between those aspects of construction that endure and those that are short-

lived, or between the activities of maintenance and the artifact that is maintained.

These observations are not recommendations for a 'change of lifestyle', which translate into the exchange of one set of needs, presumably more modest, for another. Nor do they require a renunciation of the premises of ecological science. They do identify the limitations of any technique of sustainability, and the point at which practitioners of the sustainable must remember that their enterprise is a radical rethinking of technological premises. The human face of sustainability appears in the endless balance between the insatiability and mortality of men and their dreams of redemption from that condition, pursued through technology. Sustainability overstates its purpose when it aspires to guarantee that redemption. Regenerative bathing is a 'weak' form of redemption that must be exercised daily, and it offers one example of the 'art of suffering necessity', which is born of the recognition that any therapy, any leisure, any happiness is temporary and must be renewed regularly. The art of sustainable building belongs to the art of living well in the encounter with such necessities.

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Biography

William Braham is Assistant Professor of Architecture at the University of Pennsylvania.